

AMENDMENT(S) TO THE CLAIMS

This listing of claims will replace all prior versions and listings of the claims in this application.

Listing of Claims:

1. (Currently amended) A process for the production of at least two-ply paper laminates, the process comprising:

applying in molten form a water-soluble hotmelt adhesive having a solubility in water at 20°C of at least 3% by weight to a first layer of paper, the hotmelt adhesive comprising one or more polyurethanes having a molecular weight (M_n) of at least 2,000 and wherein a 0.3% by weight solution of the hotmelt adhesive in water has an upper cloud point of at least 60°C, and laminating at least a second layer of paper onto the adhesive side of the first layer.

2-12. (Canceled)

13. (Previously Presented) A process as in claim 1 wherein the hotmelt adhesive has a melt viscosity (Brookfield Thermocell, spindle 27) of 400 to 20,000 mPa.s at a temperature of 100 to 180°C.

14. (Previously Presented) A process as in claim 1 wherein the hotmelt adhesive has an open time of at least 0.2 second.

15. (Previously Presented) A process as in claim 1 wherein the hotmelt adhesive has a crystallinity (as measured by DSC) of at least about 20% of the value measured for polyethylene glycol with a molecular weight (M_n) of 6,000.

16-17. (Canceled)

18. (Previously Presented) A process as in claim 37 wherein the nonionic polyurethane is a reaction product of at least one polyisocyanate with at least one polyalkylene glycol having a molecular weight of at least 1,550.

19-25. (Canceled)

26. (Previously Presented) A hygiene paper comprising:
a first layer of paper secured to a second layer of paper by a hotmelt adhesive having a solubility in water at 20°C of at least 3% by weight and comprising one or more polyurethanes having a molecular weight (M_n) of at least 2,000, wherein a 0.3% by weight solution of the hotmelt adhesive in water has an upper cloud point of at least 60°C.

27. (Canceled)

28. (Previously Presented) A hygiene paper as in claim 26 wherein the hotmelt adhesive has a melt viscosity (Brookfield Thermocell, spindle 27) of 400 to 20,000 mPa.s at a temperature of 100 to 180°C.

29. (Previously Presented) A hygiene paper as in claim 26 wherein the hotmelt adhesive has an open time of at least 0.2 second.

30. (Previously Presented) A hygiene paper as in claim 26 wherein the hotmelt adhesive has a crystallinity (as measured by DSC) of at least about 20% of the value measured for polyethylene glycol with a molecular weight (M_n) of 6,000.

31. (Canceled)

32. (Currently amended) A process for the production of at least two-ply paper laminates comprising:

applying in molten form a hotmelt adhesive to at least a portion of a first layer of paper, the hotmelt adhesive comprising a polyurethane obtained from a polyurethane reaction mixture containing a hydrophobic diol having a hydrophobic moiety containing from 6 to 36 carbon atoms; and

contacting a second layer of paper with the hotmelt adhesive.

33. (Currently Amended) The process of Claim 32 wherein the polyurethane reaction mixture further comprises at least one polyisocyanate and at least one polyol and wherein the ratio of OH groups in the at least one polyol to NCO groups in the at least one polyisocyanate is at least about 1.1:1.

34. (Previously Presented) The process of Claim 33 wherein the at least one polyol comprises a polyalkylene oxide.

35. (Currently amended) A process for the production of at least two-ply paper laminates comprising:

applying in molten form a hotmelt adhesive to at least a portion of a first layer of paper, the hotmelt adhesive comprising a polyurethane obtained from a polyurethane reaction mixture containing a hydrophobic structural element obtained by reacting at least one NCO-terminated oligomer with a reactant selected from the group consisting of mono-ols and monofunctional amines; and

contacting a second layer of paper with the hotmelt adhesive.

36. (Previously Presented) The process of Claim 32 wherein the hydrophobic diol is selected from the group consisting of 1,10-decanediol, 1,12-dodecanediol, 1,12-octadecanediol, dimer fatty acid diol, 1,2-octanediol, 1,2-dodecanediol, 1,2-hexadecanediol, 1,2-octadecanediol, 1,2-tetradecanediol, 4,4-isopropylidene dicyclohexanol, 4,8-bis(hydroxymethyl)tricyclo-[5,2,1,0^{2,6}]decanes, 1,4:3,6-dianhydro-D-mannitol, 1,4:3,6-dianhydro-D-sorbitol, 1,16-hexadecanediol, biosphenol A, monofatty acid esters of glycerol with fatty acids containing up to 22 carbon atoms, and mixtures thereof.

37. (Previously Presented) A process as in claim 1 wherein the polyurethanes of the hot melt adhesive are nonionic polyurethanes.

38. (Canceled)

39. (Previously Presented) A process as in claim 1 wherein the two-ply paper laminates are two-ply hygiene paper laminates.

40. (Previously Presented) A process as in claim 39 wherein the two-ply hygiene paper laminates are kitchen rolls, paper towels, paper handkerchiefs, paper napkins, toilet papers or diapers.

41. (Previously Presented) A hygiene paper as in claim 26 wherein the polyurethanes of the hot melt adhesive are nonionic polyurethanes.

42. (Previously Presented) A hygiene paper as in claim 41 wherein the nonionic polyurethane is a reaction product of at least one polyisocyanate with at least one polyalkylene glycol having a molecular weight of at least 1,550.

43. (Canceled)

44. (Previously Presented) A hygiene paper as in Claim 26 which is a kitchen roll, paper towel, paper handkerchief, paper napkin, toilet paper or diaper.

45. (Previously Presented) The process of Claim 32 wherein the polyurethane of the hot melt adhesive is a nonionic polyurethane.

46. (Previously Presented) The process of Claim 45 wherein the nonionic polyurethane is a reaction product of at least one polyisocyanate with at least one polyalkylene glycol having a molecular weight of at least 1,550.

47. (Previously Presented) The process of Claim 33 wherein the at least one polyol comprises a hydrophobic homopolymeric polyalkylene glycol.

48. (Canceled)

49. (Currently Amended) The process of Claim 35 wherein the polyurethane reaction mixture further comprises at least one polyisocyanate and at least one polyol and wherein the ratio of OH groups in the at least one polyol to NCO groups in the at least one polyisocyanate is at least about 1.1:1.

50. (Previously Presented) The process of Claim 49 wherein the at least one polyol comprises a polyalkylene oxide.

51. (Previously Presented) The process of Claim 49 wherein the at least one polyol comprises a hydrophobic homopolymeric polyalkylene glycol.

52. (Previously Presented) The process of Claim 35 wherein the polyurethane of the hot melt adhesive is a nonionic polyurethane.

53. (Previously Presented) The process of Claim 52 wherein the nonionic polyurethane is a reaction product of at least one polyisocyanate with at least one polyalkylene glycol having a molecular weight of at least 1,550.

54. (Canceled)

55. (Currently amended) The process of Claim 1 wherein the polyurethane is obtained by reacting at least one polyisocyanate and at least one polyol and wherein the ratio of OH groups in the at least one polyol to NCO groups in the at least one polyisocyanate is at least ~~about~~ 1.1:1.

56. (Currently amended) The hygiene paper of Claim 26 wherein the polyurethane is obtained by reacting at least one polyisocyanate and at least one polyol and wherein the ratio of OH groups in the at least one polyol to NCO groups in the at least one polyisocyanate is at least ~~about~~ 1.1:1.

57. (New) The process of Claim 1 wherein the polyurethane is obtained by reacting at least one polyisocyanate and at least one polyol and wherein the ratio of OH groups in the at least one polyol to NCO groups in the at least one polyisocyanate is at least 1.3:1.

58. (New) The hygiene paper of Claim 26 wherein the polyurethane is obtained by reacting at least one polyisocyanate and at least one polyol and wherein the ratio of OH groups in the at least one polyol to NCO groups in the at least one polyisocyanate is at least 1.3:1.

59. (New) The process of Claim 32 wherein the polyurethane reaction mixture further comprises at least one polyisocyanate and at least one polyol and wherein the ratio of OH groups in the at least one polyol to NCO groups in the at least one polyisocyanate is at least 1.3:1.

60. (New) The process of Claim 35 wherein the polyurethane reaction mixture further comprises at least one polyisocyanate and at least one polyol and wherein the ratio of OH groups in the at least one polyol to NCO groups in the at least one polyisocyanate is at least 1.3:1.